

1 CLAIMS

2 I claim:

3 1. An adjustable mattress comprising:

4 a first section and a second section, the first section and the second section
5 moveable relative to each other and together forming at least a portion of a sleeping
6 surface of the adjustable mattress; and7 a first mechanical drive unit within the adjustable mattress, the first
8 mechanical drive unit connected to at least one of the first section and the second
9 section and providing a mechanical force to move the first section relative to the
10 second section.

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12 2. The adjustable mattress of claim 1, further comprising one or more additional
13 sections, each additional section forming a portion of the sleeping surface of the
14 adjustable mattress, and each additional section moveable relative to at least one of
15 the first section, the second section, or another one of the one or more additional
16 sections.

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18 3. The adjustable mattress of claim 2, further comprising a second mechanical
19 drive unit within the adjustable mattress and connected to a least one of the
20 additional sections to provide mechanical force to move the at least one of the
21 additional sections relative to at least one of the first section, the second section, or
22 another one of the one or more additional sections.

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24 4. The adjustable mattress of claim 2 wherein the first mechanical drive unit is
25 connected to at least one of the one or more additional sections to move the at least
26 one of the one or more additional sections relative to at least one of the first section,
27 the second section, or another one of the one or more additional sections.

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29 5. The adjustable mattress of claim 1 further comprising a mattress cover
30 enclosing the first section, the second section, and the first mechanical drive unit.

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2 6. The adjustable mattress of claim 1 further comprising one or more layers of
3 padding beneath the sleeping surface.

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5 7. The adjustable mattress of claim 1 wherein the first section hinges relative to
6 the second section.

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8 8. The adjustable mattress of claim 1 further comprising a foundation, at least
9 one of the first section or the second section remaining stationary relative to the
10 foundation.

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12 9. The adjustable mattress of claim 1 wherein each of the first section and the
13 second section includes a mattress core adapted to receive the first mechanical drive
14 unit.

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16 10. The adjustable mattress of claim 9 wherein the mattress core of at least one
17 of the first section and the second section includes at least one of a foam core, a
18 liquid core, an air core, a plurality of open spring coils, or a plurality of pocket
19 spring coils.

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21 11. The adjustable mattress of claim 1 further comprising a controller adapted to
22 activate the first mechanical drive unit to move the first section relative to the second
23 section.

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25 12. The adjustable mattress of claim 11 wherein the controller is wireless.

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27 13. The adjustable mattress of claim 11 wherein the controller is programmable
28 to recall one or more positions of the first section and the second section.

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30 14. The adjustable mattress of claim 11 wherein the controller provides digital
31 adjustment of the first section relative to the second section.

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2 15. The adjustable mattress of claim 14 wherein the digital adjustment permits
3 entry of a number characterizing the position of the first section relative to the
4 second section.

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6 16. The adjustable mattress of claim 11 wherein the controller provides
7 continuous adjustment of the first section relative to the second section.

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9 17. The adjustable mattress of claim 16 wherein the continuous adjustment
10 includes at least one of a slider, a knob, or a dial.

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12 18. The adjustable mattress of claim 1 wherein the first mechanical drive unit
13 includes a DC motor.

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15 19. The adjustable mattress of claim 1 wherein the first mechanical drive unit
16 includes a worm gear.

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18 20. The adjustable mattress of claim 1 wherein the first mechanical drive unit
19 includes one or more arms coupled to a DC motor.

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21 21. The adjustable mattress of claim 1 wherein the first mechanical drive unit
22 includes a cable and a cable winding motor.

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24 22. The adjustable mattress of claim 1 wherein the first mechanical drive unit
25 includes a plurality of motors.

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27 23. The adjustable mattress of claim 1 wherein at least one of the first section
28 and the second section remains parallel with a ground surface.

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30 24. The adjustable mattress of claim 1 wherein the first section is at least one of
31 a head section of a mattress or a foot section of a mattress.

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2 25. The adjustable mattress of claim 1 wherein the first section includes a rigid
3 sheet for transferring force from the first mechanical drive unit to a bottom surface
4 of the first section.

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6 26. A method for adjusting a mattress comprising:
7 providing a first section of the adjustable mattress forming a first portion of a
8 sleeping surface;
9 providing a second section of the adjustable mattress forming a second
10 portion of the sleeping surface;
11 providing a mechanical drive unit that moveably couples the first section to
12 the second section; and
13 activating the mechanical drive unit to move the first section relative to the
14 second section.

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16 27. An adjustable mattress comprising:
17 a first section and a second section, the first section and the second section
18 moveable relative to each other and together forming at least a portion of a sleeping
19 surface of the adjustable mattress; and
20 a mechanical means within the adjustable mattress for moving the first
21 section relative to the second section.

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23 28. An articulated mattress having a flexible cover, comprising:
24 a base element having a head end forming a planar region parallel to the
25 sleeping surface of said mattress;
26 a sleeping element comprising:
27 one or more mattress cores disposed on and above a flexible platform; and
28 articulation means fixedly attached to said base element, comprising
29 a screw drive means fixedly mounted to said base element; and

1 linkage means coupled to said screw drive, whereby actuation of said screw
2 drive causes said linkage to bear on said flexible platform, thereby displacing said
3 platform;

4 and wherein said base element, said sleeping element, and said articulation
5 means are located within said flexible cover.

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7 29. The articulated mattress of claim 28, wherein said mattress overlaps a frame,
8 said mattress further comprising one or more clamping means for attaching said
9 mattress to said frame.

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11 30. The articulated mattress of claim 28, wherein said articulation means further
12 comprises a controller configured to effect said actuation.

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14 31. The articulated mattress of claim 30 wherein said controller is a wireless
15 controller.

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17 32. An articulated mattress having a flexible cover, comprising:
18 a base element forming a planar region parallel to the sleeping surface of said
19 mattress and having a head end;
20 a head armature having a proximate end and a distal end, said proximate end
21 rotatably connected to said base element at said head end and disposed to rotate said
22 distal end out of said planar region; and
23 motor means fixedly mounted to said base element and rotatably coupled to
24 said head armature whereby actuation of said motor means causes rotation of said
25 distal end of said armature;
26 wherein said base element, said head armature, and said motor means are
27 located within said flexible cover.

28 33. The articulated mattress of claim 32, said motor means further comprising:
29 a stator portion fixedly attached to said base element;
30 a rotor portion disposed to rotate upon said actuation of motor means; and

1 an axle fixedly connected to said rotor portion;
2 wherein said axle is fixedly connected to said proximate end of said head
3 armature.

4 34. The articulated mattress of claim 33, wherein said motor means comprises:
5 a stator portion fixedly attached to said base element;
6 cable winding means attached to a rotor portion of said motor;
7 a first fixed sheave mounted on said base element;
8 a second fixed sheave mounted on said head armature; and
9 a length of cable having a proximate end and a distal end;
10 wherein:
11 said proximate end of said cable is fixedly attached to said winding means;
12 said cable is wrapped at least partly around said winding means, passing
13 thence around said first fixed sheave in a first direction and then around said second
14 fixed sheave in a second direction; and
15 said distal end of said cable is fixedly attached to said head armature so that
16 actuation of said motor means causes said distal end of said cable to be drawn
17 towards said winding means, thereby rotating said head armature out of said planar
18 region.

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20 35. The articulated mattress of claim 32 wherein:
21 said mattress comprises a bottom surface disposed opposite said sleeping
22 surface; and
23 said base element and said head armature are disposed between said sleeping
24 surface and said bottom surface parallel to said bottom surface.

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26 36. The articulated mattress of claim 35, further comprising one or more flexible
27 mattress cores disposed between said sleeping surface and said base element and
28 between said sleeping surface and said head armature.

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30 37. The articulated mattress of claim 32, wherein said motor means comprises:

1 a stator portion fixedly attached to said base element;
2 cable winding means attached to a rotor portion of said motor;
3 a first fixed sheave mounted on said base element;
4 a second fixed sheave mounted on said head armature; and
5 a length of cable having a proximate end and a distal end;
6 wherein:
7 said proximate end of said cable is fixedly attached to said winding means;
8 said cable is wrapped at least partly around said winding means, passing
9 thence around said first fixed sheave in a first direction and then around said second
10 fixed sheave in a second direction; and
11 said distal end of said cable is fixedly attached to said base element so that
12 actuation of said motor means causes said distal end of said cable to be drawn
13 towards said winding means, thereby rotating said head armature out of said planar
14 region.

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16 38. The articulated mattress of claim 32 wherein said motor means further
17 comprises a plurality of identical motors acting in concert.

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19 39. The articulated mattress of claim 32 wherein said motor means further
20 comprises a controller configured to effect said actuation.

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22 40. The articulated mattress of claim 39 wherein said controller is a wireless
23 controller.

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25 41. An articulated mattress having a flexible cover, comprising:
26 a base element forming a planar region parallel to the sleeping surface of said
27 mattress and having a foot end;
28 a foot armature having a proximate end and a distal end, said proximate end
29 rotatably connected to said base element at said foot end and disposed to rotate said
30 distal end out of said planar region; and

1 motor means fixedly mounted to said base element and rotatably coupled to
2 said foot armature whereby actuation of said motor means causes rotation of said
3 distal end of said armature;
4 wherein said base element, said foot armature, and said motor means are located
5 within said flexible cover.

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7 42. The articulated mattress of claim 41, said motor means further comprising:
8 a stator portion fixedly attached to said base element;
9 a rotor portion disposed to rotate upon said actuation of motor means; and
10 an axle fixedly connected to said rotor portion;
11 wherein said axle is fixedly connected to said proximate end of said foot armature.

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13 43. The articulated mattress of claim 41, wherein said motor means comprises:
14 a stator portion fixedly attached to said base element;
15 cable winding means attached to a rotor portion of said motor;
16 a first fixed sheave mounted on said base element;
17 a second fixed sheave mounted on said foot armature; and
18 a length of cable having a proximate end and a distal end;

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 wherein:

20 said proximate end of said cable is fixedly attached to said winding means;
21 said cable is wrapped at least partly around said winding means, passing
22 thence around said first fixed sheave in a first direction and then around said second
23 fixed sheave in a second direction; and
24 said distal end of said cable is fixedly attached to said foot armature so that
25 actuation of said motor means causes said distal end of said cable to be drawn
26 towards said winding means, thereby rotating said foot armature out of said planar
27 region.

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29 44. The articulated mattress of claim 41 wherein:
30 said mattress comprises a bottom surface disposed opposite said sleeping
31 surface; and

1 said base element and said foot armature are disposed between said sleeping
2 surface and said bottom surface parallel to said bottom surface.

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4 45. The articulated mattress of claim 44, further comprising one or more flexible
5 mattress cores disposed between said sleeping surface and said base element and
6 between said sleeping surface and said foot armature.

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8 46. The articulated mattress of claim 41, wherein said motor means comprises:
9 a stator portion fixedly attached to said base element;
10 cable winding means attached to a rotor portion of said motor;
11 a first fixed sheave mounted on said base element;
12 a second fixed sheave mounted on said foot armature; and
13 a length of cable having a proximate end and a distal end;
14 wherein:
15 said proximate end of said cable is fixedly attached to said winding means;
16 said cable is wrapped at least partly around said winding means, passing
17 thence around said first fixed sheave in a first direction and then around said second
18 fixed sheave in a second direction; and
19 said distal end of said cable is fixedly attached to said base element so that
20 actuation of said motor means causes said distal end of said cable to be drawn
21 towards said winding means, thereby rotating said foot armature out of said planar
22 region.

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24 47. The articulated mattress of claim 41 wherein said motor means further
25 comprises a plurality of identical motors acting in concert.

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27 48. The articulated mattress of claim 41 wherein said motor means further
28 comprises a controller configured to effect said actuation.

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30 49. The articulated mattress of claim 48 wherein said controller is a wireless
31 controller.